Reviewing Principles

NICOLE IMMORLICA, MICROSOFT RESEARCH

unsung heroes.

authors

prize-winners

tenured professors

PCs   chairs

editors

reviewers

letter writers   nominators

the scientific community
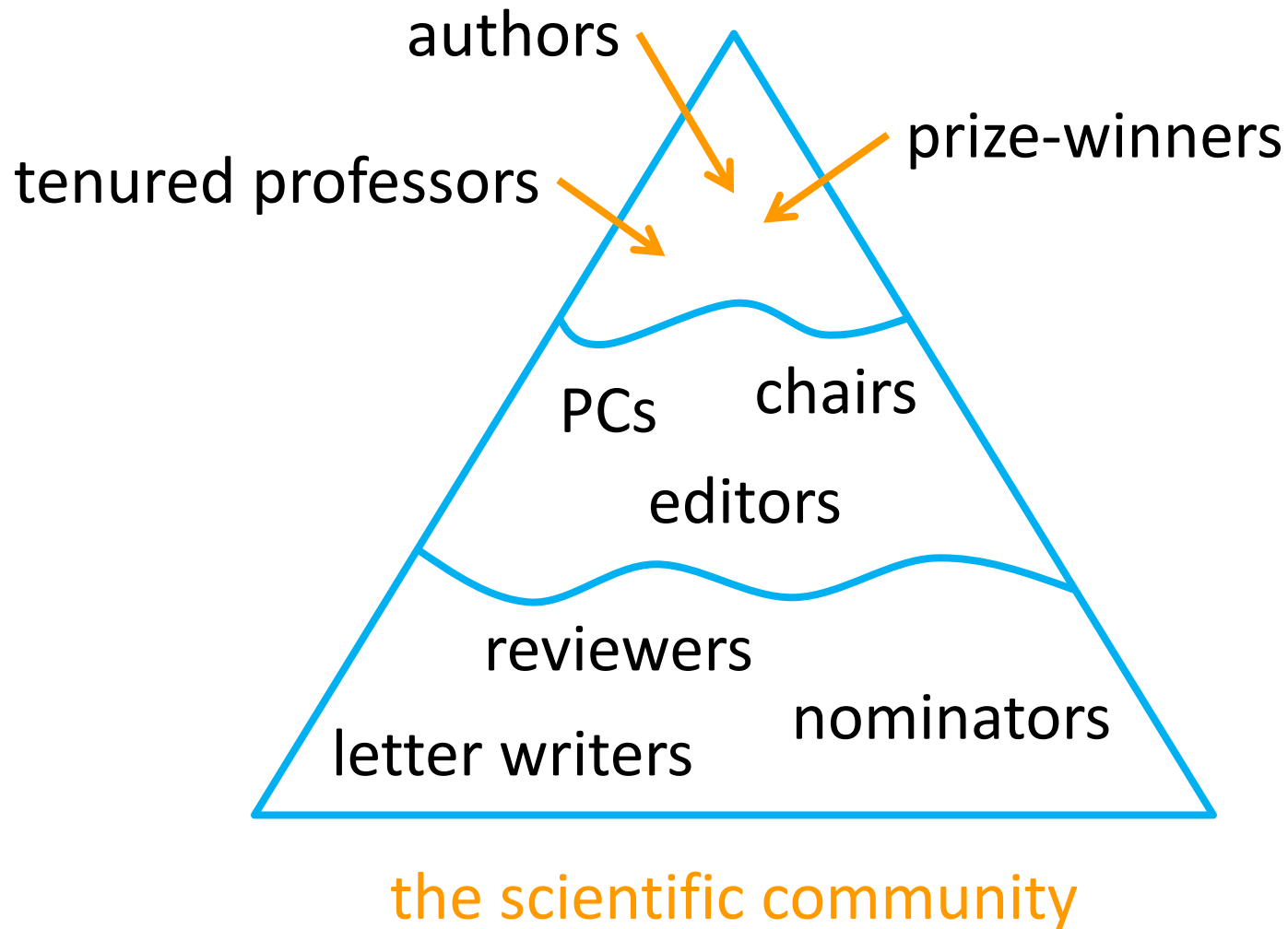
reviewers.
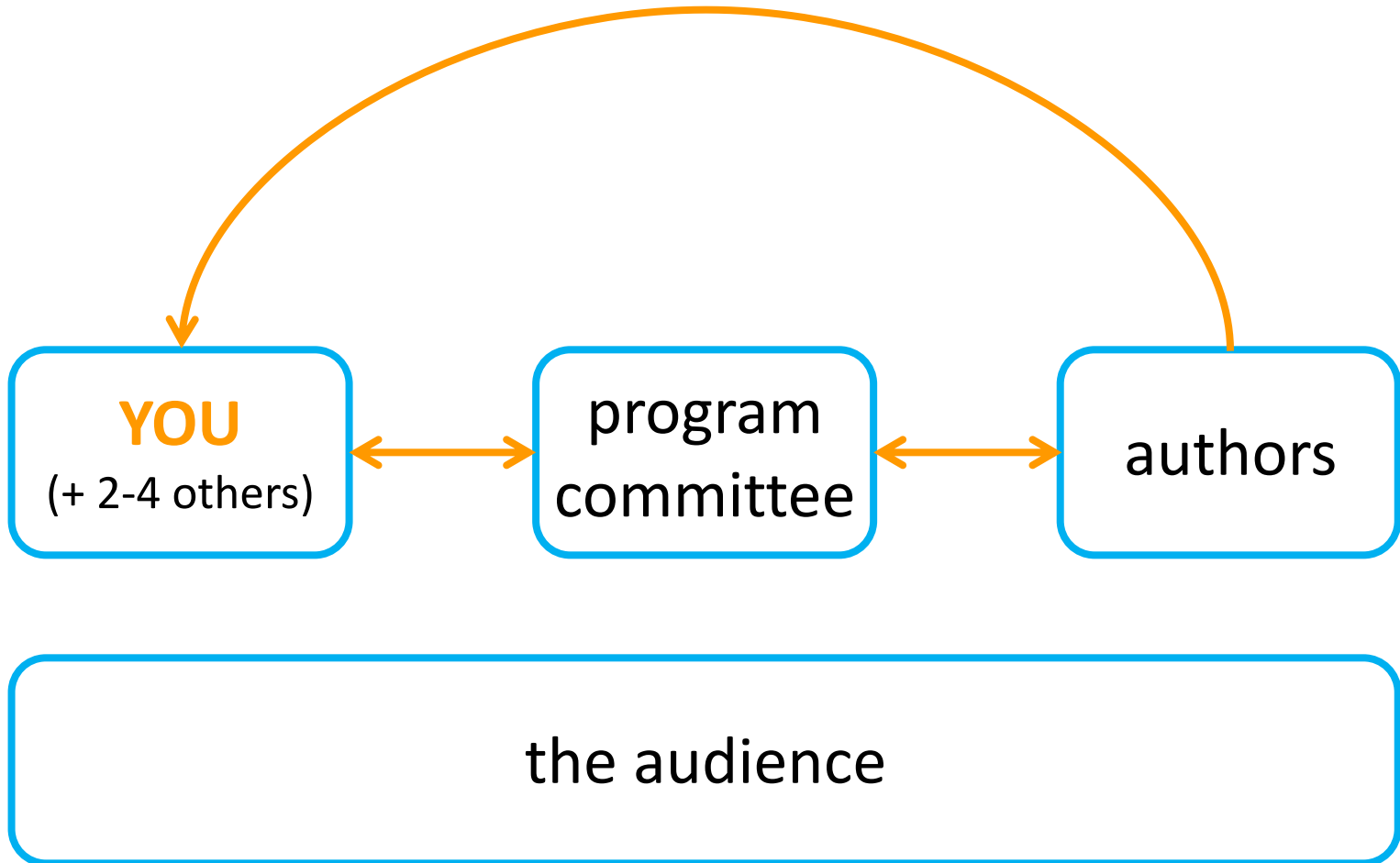
role.

What is the purpose of a review?

structure.

Summarize main contribution. Should contain enough context to explain what paper does.

Form subjective evaluation. Discuss what you learned from this paper, why paper is important, be generous!

List any concerns. Is there an error in a proof, is the result a trivial implication of existing uncited work?

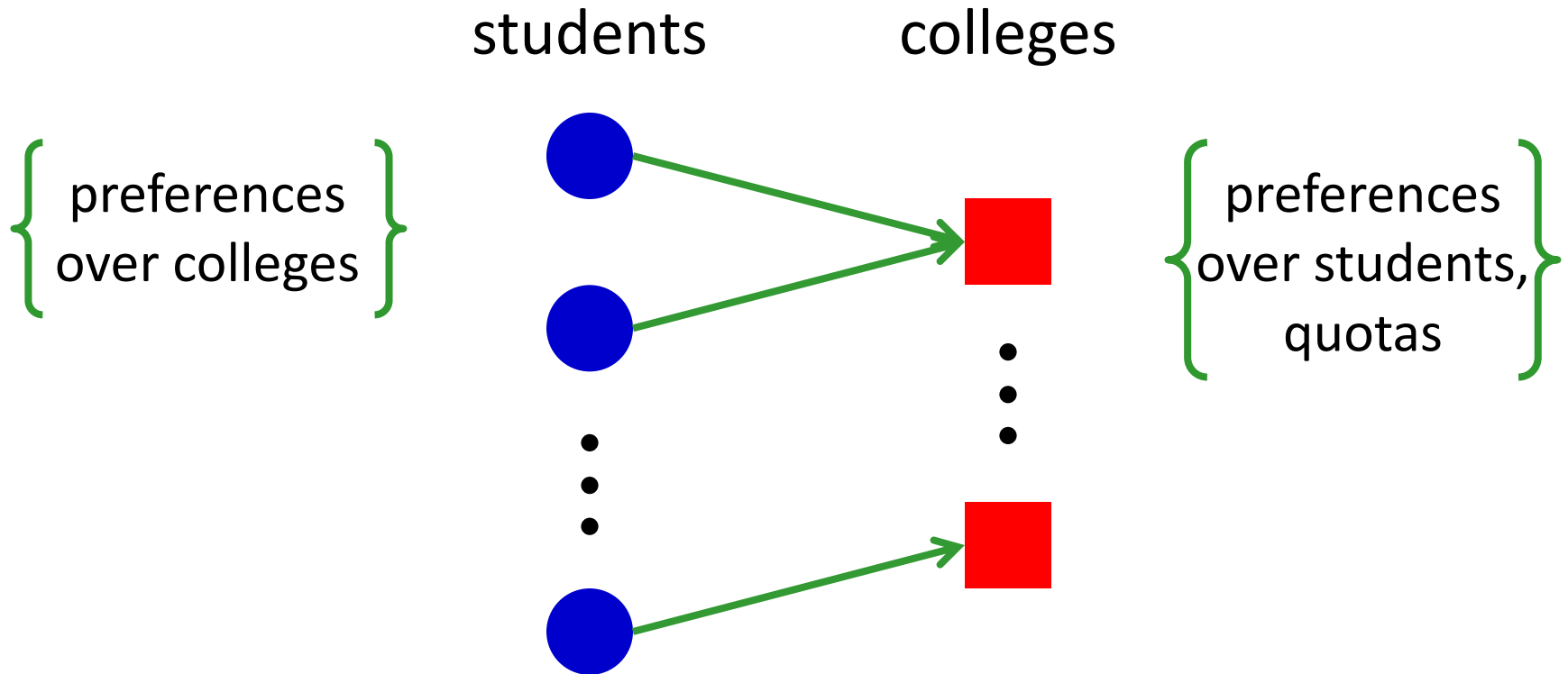Form recommendation. Do the results belong in this venue? Why or why not? Be concrete.

importance.

What makes a paper important?

example.
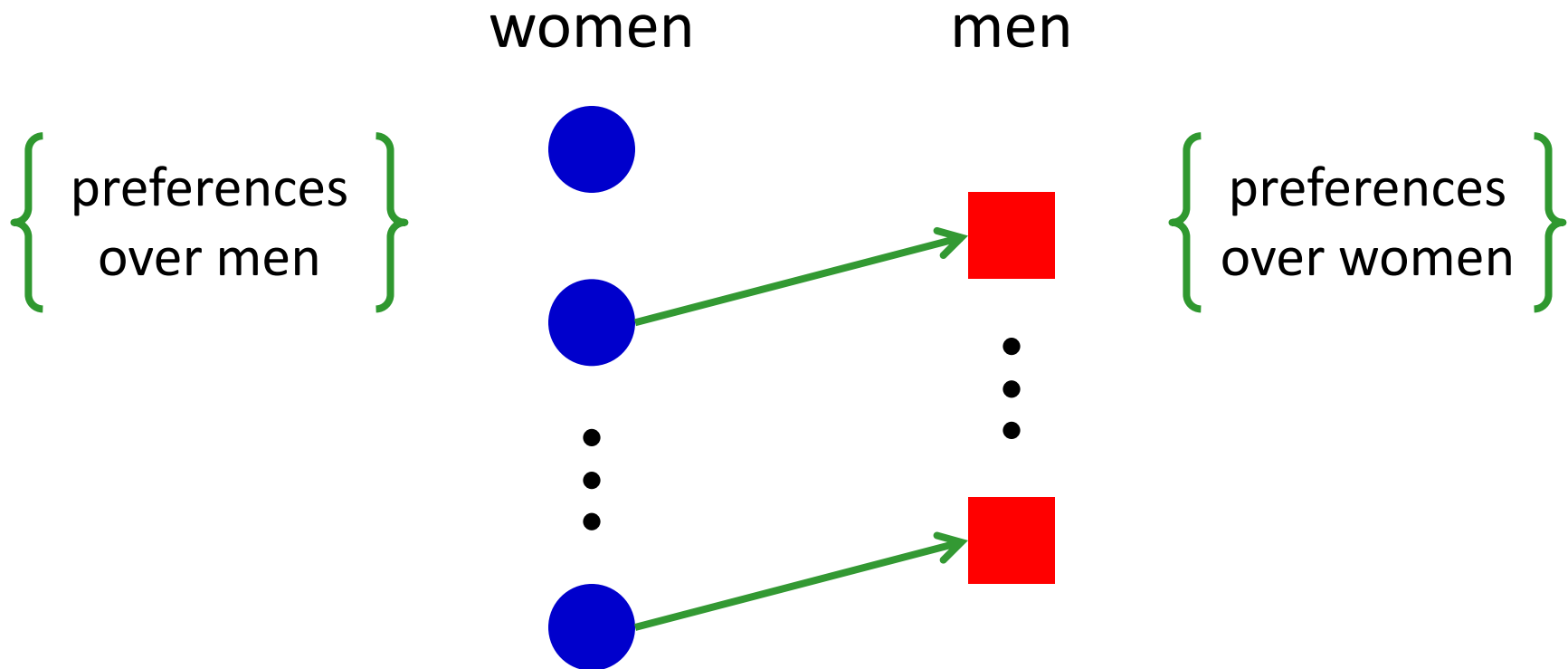
College Admissions and the Stability of Marriage,
by Gale and Shapley.

college admissions.

students   colleges

{ preferences
over colleges }

{ preferences
over students,
quotas }

issues: uncertainty, strategic considerations, timing

marriage markets.

women men

$\{$ preferences over men $\}$

$\{$ preferences over women $\}$

assignment μ matching each woman to at most one man.

matching markets.

women   men

Woman i has
preferences $>_{w_i}$.

Man j has
preferences $>_{m_j}$.
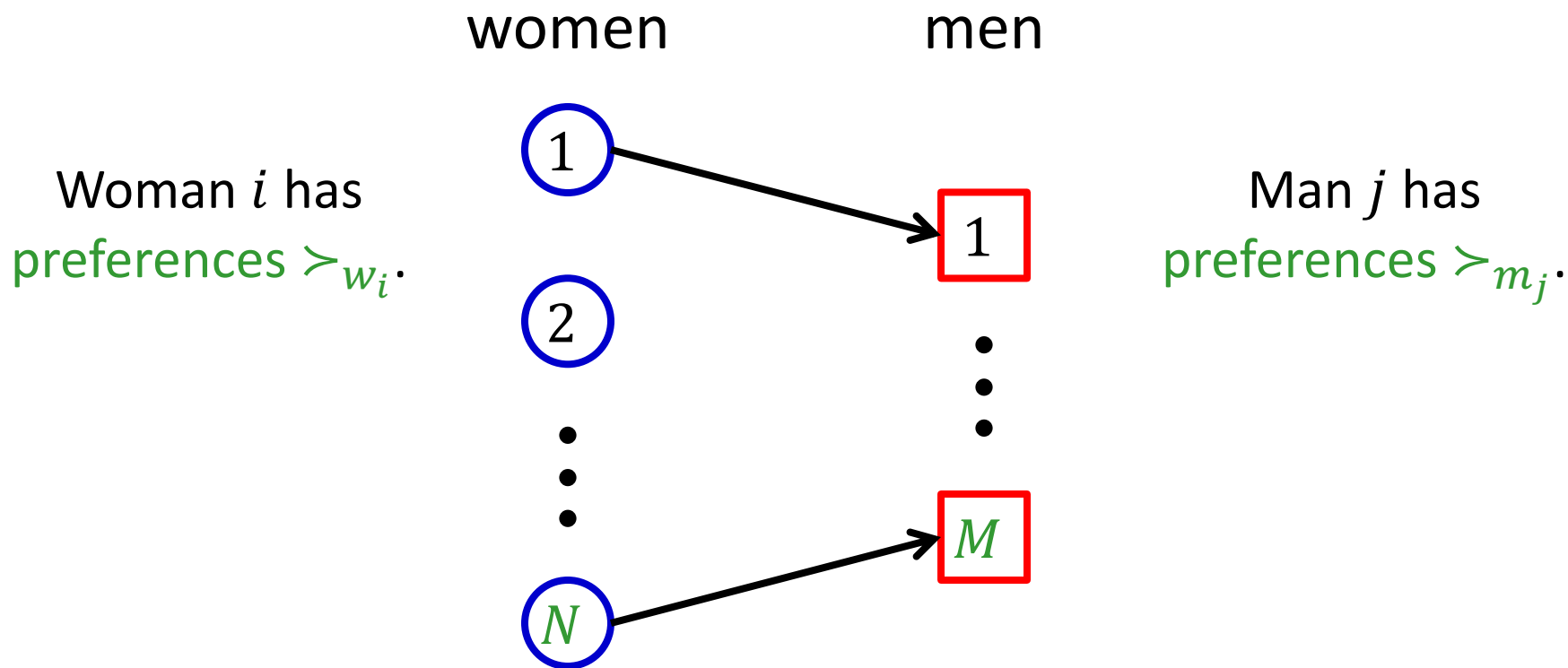
$a >_x b$ means x prefers a to b,
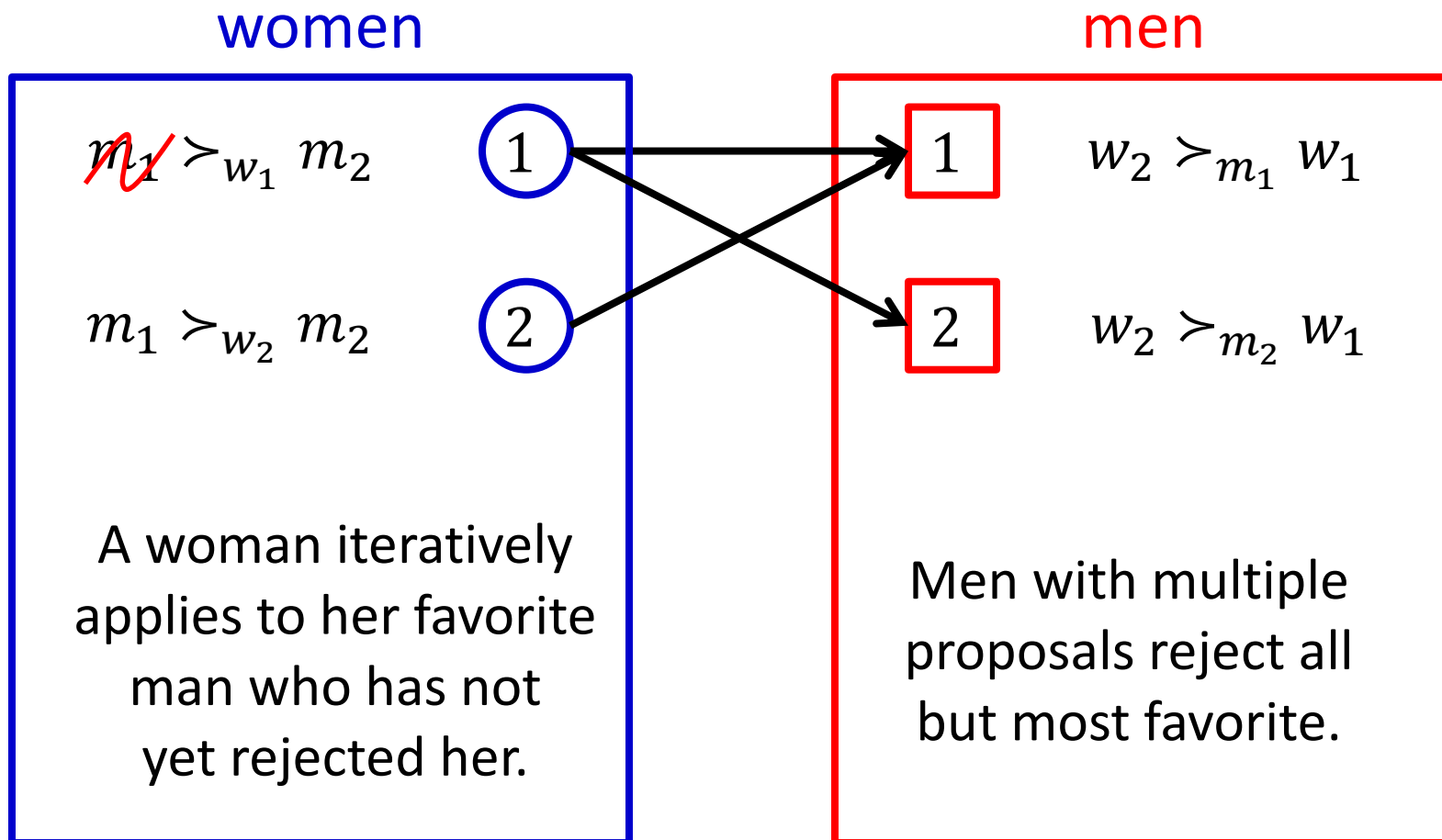$x >_x b$ means x prefers being unmatched to b.

properties.

Definition: An assignment is stable if it's individually rational and, for every woman w,
- if w envies m's wife ($m \succ_w \mu(w)$),
- then m prefers his wife to w ($\mu(m) \succ_m w$).

Definition: An assignment is optimal for agents S if there's no other *stable* one that everyone in S prefers.

W-deferred acceptance.

women

men

$\cancel{m_1} \succ_{w_1} m_2$ ①

$m_1 \succ_{w_2} m_2$ ②

□1 $w_2 \succ_{m_1} w_1$

□2 $w_2 \succ_{m_2} w_1$

A woman iteratively applies to her favorite man who has not yet rejected her.

Men with multiple proposals reject all but most favorite.

results.

Deferred acceptance

… outputs a stable matching w.r.t. submitted lists,
… is optimal for the proposing side.

reading.

College Admissions and the Stability of Marriage,
by Gale and Shapley.

structure.

Summarize main contribution. Should contain enough context to explain what paper does.

Form subjective evaluation. Discuss what you learned from this paper, why paper is important, be generous!

List any concerns. Is there an error in a proof, is the result a trivial implication of existing uncited work?

Form recommendation. Do the results belong in this venue? Why or why not? Be concrete.

review.

Summarize main contribution.

This paper studies a matching problem with applications to college admissions. The authors introduce two properties of matchings – stability and optimality – and describe an algorithm that computes a matching satisfying these properties.

reject review.

Form subjective evaluation.

- college admissions is a significant application, but the model does not match the reality
- authors restrict attention to stable matchings, but blocking pairs may exist with incomplete info
- optimality for students ignores colleges
- algorithm is a caricature of what anyway happens

Form recommendation.

Reject, paper lacks relevance to stated application, defns are poorly motivated, and technical results are not sufficiently novel or interesting to merit acceptance on their own.

accept review.

Form subjective evaluation.

- college admissions is a significant application, and the model nicely abstracts the key elements
- authors introduce stability, a nice notion that suggests the constructed matching should persist
- algorithm demonstrates permissive conditions for existence of stable (and optimal) matchings
- algorithm is intuitive enough to implement

Form recommendation.

Accept, paper models important application, introduces a compelling property, and proves existence with an algorithm that can be adopted in practice.

conclusion.

I challenge you to:

1. Never say trivial/hard or obvious/surprising.
2. Try hard to honestly accept every paper.
3. State something valuable about every paper.